

REMARKS

The Applicant is filing this RCE, Response, and Amendment in response to Final Office Action dated November 29, 2005. At the time of the Final Office Action, claims 1-5, 8-23, 26-36 and 58 and 59 were pending. In this RCE, Response, and Amendment, claims 59-63 are added. Accordingly claims 1-5, 8-23, 26-36 and 58-63 are currently pending.

In the Final Office Action, claims 1 and 20 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claims 1-2, 3-5, 8, 20-21, 23, and 26 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,020,235 to Chang ("the Chang reference"). Claims 3 and 22 were rejected under 35 U.S.C. § 103(a) as being unpatentable based on the Chang reference in view of U.S. Patent Publication No. 6,055,655 to Momohara ("the Momohara reference"). Each of these rejections is addressed in detail below.

The Rejection Under 35 U.S.C. § 112, First Paragraph

With respect to the rejection of claims 1 and 20 under Section 112, first paragraph, the Examiner stated:

Claims 1 and 20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter [that] was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Both claims, as amended, disclose that each capacitive element has a **first electrode with an interior portion forming a pair of concentric sidewalls extending perpendicularly from a substrate**. There is insufficient disclosure within the specification to justify these additional limitations.

Final Office Action, p. 2 (emphasis in original).

Legal Precedent

Regarding the written description requirement, the initial burden of proof regarding the sufficiency of the written description falls on the Examiner. Accordingly, the Examiner must present evidence or reasons why persons skilled in the art would not recognize a description of the claimed subject matter in the applicant's disclosure. *In re Wertheim*, 541 F.2d 257, 262, 191 U.S.P.Q. 90, 96 (CCPA 1976). The Examiner is also reminded that the written description requirement does not require the claims to recite the same terminology used in the disclosure. The patentee may be his own lexicographer. *Ellipse Corp. v. Ford Motor Co.*, 171 U.S.P.Q. 513 (7th Cir. 1971), *aff'd*, 613 F.2d 775 (7th Cir. 1979), *cert. denied*, 446 U.S. 939 (1980). Moreover, any information contained in any part of the application as filed, including the specification, claims and drawings, may be added to other portions of the application without introducing new matter. Accordingly, if an application as originally filed contains a claim disclosing material not disclosed in the remainder of the specification, the applicant may amend the specification to include the claimed subject matter. *In re Benno*, 768 F.2d 1340, 226 U.S.P.Q. 683 (Fed. Cir. 1985).

Support in the Specification for the Claimed Features

Figure 5 depicts the features of claim 1 and 20 cited by the Examiner as lacking sufficient supporting disclosure in the specification. Specifically, Figure 5 depicts an "electrode with an interior portion forming a pair of concentric sidewalls extending perpendicularly from a substrate," as recited by independent claims 1 and 20. Figure 5 illustrates a capacitive memory

element 304 on a substrate 302. Specification, page 10, ll. 2-4. The capacitive memory element 304, from the plan-view perspective of Figure 5, is depicted by an outer, larger ellipse and an inner, smaller ellipse (collectively and individually referred to by reference number 304). By well known convention, perpendicular sidewalls are depicted as a line in a plan view. Thus, one of skill in the art would clearly recognize that both the outer ellipse and inner ellipse 304 correspond to perpendicular sidewalls of the capacitive memory element 304. Moreover, the inner ellipse and outer ellipse 304 are clearly concentric in Figure 5. Thus, one of skill in the art would understand that the sidewalls represented by these ellipses 304 are concentric. In short, one skilled in the art would recognize that Figure 5 depicts a capacitive memory element 304 with concentric sidewalls forming an elliptical-tubular shape that extends perpendicularly from the substrate 302.

Further, the specification makes clear that one electrode of the capacitive memory element 304 is identified by reference number 304. As illustrated in Figure 3, a capacitive memory element 112 includes a grounded plate 118 and a selectively isolated plate 116. *See* Specification, page 7, ll. 20-22. The specification also makes clear that charge leakage between capacitors is to be avoided. Specification, page 9, ll. 7-12. Thus, one of skill in the art would understand that, if plate 118 of each capacitor is connected to ground, the other plate 116 is isolated. Knowing the significance of isolating plate 116, one of skill in the art would further understand that the reference number 304 identifies one plate of a capacitor, and not a complete capacitive memory element. Indeed, the specification repeatedly stresses the importance of isolating the portion of a capacitive memory element identified by reference number 304. *See* Specification, page 11, ll. 4-6. Thus, as would clearly be appreciated by those skilled in the art,

reference number 304 identifies an electrode with concentric sidewalls extending perpendicularly from the substrate 302.

In short, one of ordinary skill in the art would understand that Figure 5 depicts an “electrode with an interior portion forming a pair of concentric sidewalls extending perpendicularly from a substrate,” as recited by claims 1 and 20. Accordingly, one of skill in the art who had reviewed the present application in its entirety would understand that the Applicant possessed the claimed subject matter at the time the application was filed.

For these reasons, Applicants respectfully requests withdrawal of the rejections under Section 112, first paragraph.

The Rejection Under 35 U.S.C. § 102(e)

With respect to the rejection of claims 1-2, 3-5, 8, 20-21, 23 and 26 under Section 102 based on the Chang reference, the Examiner stated:

Claims 1-2, 3-5, 8, 20-21 and 23, 26 [sic] are rejected under 35 U.S.C. 102(b) as being anticipated by Chang (US 6020235).

Regarding claim 1, Chang discloses a plurality of generally elliptical capacitive memory elements (*The shaded region in Fig. 3 which defines the extra capacitor area is oblong with sharp edges, however, physically implementing such a structure would yield a device with rounded edges. Therefore, the examiner concludes that Chang anticipates capacitive memory elements that are **generally** elliptical*), each capacitive memory element having a first electrode (13, Fig. 1a) with an interior portion forming a pair of concentric sidewalls extending perpendicularly from a substrate (*starting from the bottom of 13, Fig. 1a, the electrode makes a symmetrical step upward in opposing horizontal directions thus producing a pair of concentric sidewalls extending perpendicularly from a substrate*)

the plurality of capacitive memory elements disposed on a substrate so that an axis that runs longitudinally through one of the

plurality of capacitive memory elements is not generally parallel with an edge of the substrate (Fig. 3 and Col. 2, lines: 50-65).

Regarding claim 2, Chang further discloses wherein the axis is not generally perpendicular with an orthogonal edge of the substrate (Fig. 3 and Col. 2, lines: 50-65).

Regarding claim 4, Chang further discloses wherein the substrate comprises a memory device (Fig. 3 and Col. 1, 34-47).

Regarding claim 5, Chang further discloses wherein the substrate comprises an integrated circuit device (Fig. 3 and Col. 1, lines: 7-10).

Regarding claim 8, Chang further discloses wherein each of the plurality of capacitive memory elements is slanted with respect to the edge of the substrate (Fig. 3 and Col. 2, lines: 50-65).

Regarding claim 20, Chang discloses an integrated circuit device, comprising: a memory array that includes a plurality of memory cells disposed on the substrate, the memory array comprising a plurality of capacitive memory elements, each of the capacitive memory elements being associated with one of the plurality of memory cells, each capacitive memory element having a first electrode (13, Fig. 1a) with an interior portion forming a pair of concentric sidewalls extending perpendicularly from the substrate (*starting from the bottom of 13, Fig. 1a, the electrode makes a symmetrical step upward in opposing horizontal directions thus producing a pair of concentric side walls extending perpendicularly from a substrate*)

the plurality of capacitive memory elements being disposed on the substrate so that an axis that runs longitudinally through one of the plurality of capacitive memory elements is not generally parallel with an edge of the substrate (Fig. 3 and Col. 2, lines: 50-65).

Regarding claim 21, Chang further discloses wherein the axis is not generally perpendicular with an orthogonal edge of the substrate (Fig. 3 and Col. 2, lines: 50-65).

Regarding claim 23, Chang further discloses wherein the substrate comprises a memory device (Fig. 3 and Col. 1, 34-47).

Regarding claim 26, Chang further discloses wherein each of the plurality of capacitive memory elements is slanted with respect to the edge of the substrate (Fig. 3 and Col. 2, lines: 50-65).

Final Office Action, pp. 3-5 (emphasis in original).

The Applicant respectfully traverses the rejection. Anticipation under section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under section 102, every element of the claimed invention must be identically shown in a single

reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). In order to maintain a proper rejection under section 102, a single reference must teach each and every element or step of the rejected claim, else the reference falls under section 103. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Accordingly, the Applicant need only point to a single element not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter. The prior art reference also must show the *identical* invention “*in as complete detail as contained in the ... claim*” to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989).

In the present case, the Chang reference does not anticipate the Applicant’s claims under Section 102 because every element of the claimed invention is not identically shown in Chang. Specifically, independent claims 1 and 20 both recite “a first electrode with an interior portion forming a pair of concentric sidewalls extending perpendicularly from a substrate.” (Emphasis added.)

In contrast to the Applicant’s claims, the Chang reference discloses a memory cell having a shell-shaped electrode 13 and 15 that extends *parallel* to a substrate. Specifically, the shell-shaped electrode 13 and 15 forms a sleeve around the core 14, and the core 14 extends along the surface of the substrate “from one memory cell to another memory cell.” Chang, col. 2, ll. 24-26 and 52-55; Fig. 3. Therefore, the shell-shaped electrode 13 and 15, which surrounds the core 14, also extends along the surface of the substrate. That is, the Chang reference teaches a shell-shaped electrode 13 and 15 that extends *parallel* to a substrate.

In the Final Office Action, the Examiner asserted that “the electrode [13a] makes a symmetrical step upward in opposing horizontal directions thus producing a pair of concentric sidewalls extending perpendicularly from a substrate.” However, Fig. 1a clearly indicates that the side walls of electrode 13a do not extend perpendicularly from the substrate. Indeed, the upper portion of electrode 13a extends horizontally over the substrate. Further, the lower portion of electrode 13a extends from the substrate in a curved manner, rising to meet the horizontal portion. Thus, the electrode 13a could not possibly extend perpendicularly from the substrate.

Therefore, the Chang reference does not disclose “a first electrode with an interior portion forming a pair of concentric sidewalls extending perpendicularly from a substrate,” as recited by independent claims 1 and 20.

For at least these reasons, the Applicant respectfully submits that independent claims 1 and 20 (and the claims depending thereon) are not anticipated by the Chang reference. Accordingly, the Applicant respectfully requests the withdrawal of the rejection of claims 1-2, 3-5, 8, 20-21, 23 and 26 under Section 102 based on the Chang reference.

The Rejection Under 35 U.S.C. § 103

With respect to the rejection of claims 3 and 22 under 35 U.S.C. § 103 as being rendered unpatentable by the Chang reference in view of the Momohara reference, the Examiner stated:

Claims 3 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang (US 6020235) in view of Momohara (US 6055655).

Regarding claims 3 and 22, Chang discloses the structure of claims 1 and 20 as mentioned above, however, Chang does not explicitly disclose wherein the substrate comprises a processor.

Momohara discloses a system-on-silicon i.e. processor and memory on the same substrate (Figs. 1a-b and Col. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Chang's memory structure into Momohara's system on a chip for the purpose of reducing the size and cost as taught by Momohara (Col. 1).

Final Office Action, pp. 5-6.

The Applicant respectfully traverses the rejection. The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988).

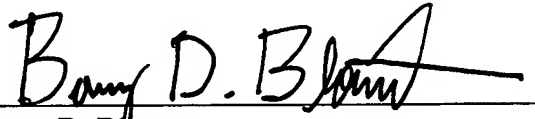
Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

The rejection of claims 3 and 22 under Section 103 is defective for at least the reasons set forth above with respect to the rejection of independent claims 1 and 20 under Section 102. Moreover, neither the Chang reference nor the Momohara reference discloses a capacitive memory element having a first electrode with an interior portion forming a pair of concentric sidewalls extending perpendicularly from a substrate. Therefore, the combination of the Chang reference and the Momohara reference cannot render the Applicant's claims obvious. Accordingly, the Applicant respectfully asserts that the rejections of claims 3 and 20 under Section 103 are erroneous and should be withdrawn.

Conclusion

In view of the remarks set forth above, the Applicant respectfully requests reconsideration of the Examiner's rejections and allowance of all pending claims 1-5, 8-23, 26-36 and 58-63. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Barry D. Blount", written over a horizontal line.

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